



SEQUENCE LISTING

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<120> Method for Studying Protein Interactions in Vivo

<130> 11785-3

<140> US 09/786377

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<150> US 60/135,835

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<150> PCT/US99/20207

<151> 1999-09-02

<160> 10

<170> PatentIn version 3.0

<210> 1

<211> 918

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (3)..(719)

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1

5

10

15

ctg ctc gct gcc agc cca gga ggc gcc ttg gcg cgg tgc cca ggc tgc 95

Leu Leu Ala Ala Ser Pro Gly Gly Ala Leu Ala Arg Cys Pro Gly Cys

20

25

30

ggg caa ggg gtg cag gcg ggt tgt cca ggg ggc tgc gtg gag gag gag 143

Gly Gln Gly Val Gln Ala Gly Cys Pro Gly Gly Cys Val Glu Glu Glu

35	40	45	
gat ggg ggg tcg cca gcc gag ggc tgc gcg gaa gct gag ggc tgt ctc			191
Asp Gly Gly Ser Pro Ala Glu Gly Cys Ala Glu Ala Glu Gly Cys Leu			
50	55	60	
agg agg gag ggg cag gag tgc ggg gtc tac acc cct aac tgc gcc cca			239
Arg Arg Glu Gly Gln Glu Cys Gly Val Tyr Thr Pro Asn Cys Ala Pro			
65	70	75	
gga ctg cag tgc cat ccg ccc aag gac gac gag gcg cct ttg cgg gcg			287
Gly Leu Gln Cys His Pro Pro Lys Asp Asp Glu Ala Pro Leu Arg Ala			
80	85	90	95
ctg ctg ctc ggc cga ggc cgc tgc ctt ccg gcc cgc gcg cct gct gtt			335
Leu Leu Leu Gly Arg Gly Arg Cys Leu Pro Ala Arg Ala Pro Ala Val			
100	105	110	
gca gag gag aat cct aag gag agt aaa ccc caa gca ggc act gcc cgc			383
Ala Glu Glu Asn Pro Lys Glu Ser Lys Pro Gln Ala Gly Thr Ala Arg			
115	120	125	
cca cag gat gtg aac cgc aga gac caa cag agg aat cca ggc acc tct			431
Pro Gln Asp Val Asn Arg Arg Asp Gln Gln Arg Asn Pro Gly Thr Ser			
130	135	140	
acc acg ccc tcc cag ccc aat tct gcg ggt gtc caa gac act gag atg			479
Thr Thr Pro Ser Gln Pro Asn Ser Ala Gly Val Gln Asp Thr Glu Met			
145	150	155	
ggc cca tgc cgt aga cat ctg gac tca gtg ctg cag caa ctc cag act			527
Gly Pro Cys Arg Arg His Leu Asp Ser Val Leu Gln Gln Leu Gln Thr			
160	165	170	175
gag gtc tac cga ggg gct caa aca ctc tac gtg ccc aat tgt gac cat			575
Glu Val Tyr Arg Gly Ala Gln Thr Leu Tyr Val Pro Asn Cys Asp His			
180	185	190	
cga ggc ttc tac cgg aag cgg cag tgc cgc tcc tcc cag ggg cag cgc			623
Arg Gly Phe Tyr Arg Lys Arg Gln Cys Arg Ser Ser Gln Gly Gln Arg			
195	200	205	
cga ggt ccc tgc tgg tgt gtg gat cgg atg ggc aag tcc ctg cca ggg			671
Arg Gly Pro Cys Trp Cys Val Asp Arg Met Gly Lys Ser Leu Pro Gly			
210	215	220	
tct cca gat ggc aat gga agc tcc tcc tgc ccc act ggg agt agc ggc			719
Ser Pro Asp Gly Asn Gly Ser Ser Ser Cys Pro Thr Gly Ser Ser Gly			
225	230	235	

taaagctggg ggatagaggg gctgcagggc cactggaagg aacatggagc tgtcatcact
779

caacaaaaaa ccgaggccct caatccacct tcaggccccg ccccatgggc ccttcaccgc
839

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899

aaaaaaaaaa aaaaaaaaaa 918

<210> 2
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<213> Homo sapiens

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20 25 30

Gln Gly Val Gln Ala Gly Cys Pro Gly Gly Cys Val Glu Glu Glu Asp
35 40 45

Gly Gly Ser Pro Ala Glu Gly Cys Ala Glu Ala Glu Gly Cys Leu Arg
50 55 60

Arg Glu Gly Gln Glu Cys Gly Val Tyr Thr Pro Asn Cys Ala Pro Gly
65 70 75 80

Leu Gln Cys His Pro Pro Lys Asp Asp Glu Ala Pro Leu Arg Ala Leu
85 90 95

Leu Leu Gly Arg Gly Arg Cys Leu Pro Ala Arg Ala Pro Ala Val Ala
100 105 110

Glu Glu Asn Pro Lys Glu Ser Lys Pro Gln Ala Gly Thr Ala Arg Pro
115 120 125

Gln Asp Val Asn Arg Arg Asp Gln Gln Arg Asn Pro Gly Thr Ser Thr
130 135 140

Thr Pro Ser Gln Pro Asn Ser Ala Gly Val Gln Asp Thr Glu Met Gly
145 150 155 160

Pro Cys Arg Arg His Leu Asp Ser Val Leu Gln Gln Leu Gln Thr Glu

165

170

175

Val Tyr Arg Gly Ala Gln Thr Leu Tyr Val Pro Asn Cys Asp His Arg
 180 185 190

Gly Phe Tyr Arg Lys Arg Gln Cys Arg Ser Ser Gln Gly Gln Arg Arg
 195 200 205

Gly Pro Cys Trp Cys Val Asp Arg Met Gly Lys Ser Leu Pro Gly Ser
 210 215 220

Pro Asp Gly Asn Gly Ser Ser Ser Cys Pro Thr Gly Ser Ser Gly
 225 230 235

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 <213> Renilla reniformis

<220>
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 <222> (10)..(945)

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ata act ggt ccg cag tgg tgg gcc aga tgt aaa caa atg aat gtt ctt 99
 Ile Thr Gly Pro Gln Trp Trp Ala Arg Cys Lys Gln Met Asn Val Leu
 15 20 25 30

gat tca ttt att aat tat tat gat tca gaa aaa cat gca gaa aat gct 147
 Asp Ser Phe Ile Asn Tyr Tyr Asp Ser Glu Lys His Ala Glu Asn Ala
 35 40 45

gtt att ttt tta cat ggt aac gcg gcc tct tct tat tta tgg cga cat 195
 Val Ile Phe Leu His Gly Asn Ala Ala Ser Ser Tyr Leu Trp Arg His
 50 55 60

gtt gtg cca cat att gag cca gta gcg cgg tgt att ata cca gat ctt 243
 Val Val Pro His Ile Glu Pro Val Ala Arg Cys Ile Ile Pro Asp Leu
 65 70 75

att ggt atg ggc aaa tca ggc aaa tct ggt aat ggt tct tat agg tta 291
 Ile Gly Met Gly Lys Ser Gly Lys Ser Gly Asn Gly Ser Tyr Arg Leu
 80 85 90

ctt gat cat tac aaa tat ctt act gca tgg ttt gaa ctt ctt aat tta	339
Leu Asp His Tyr Lys Tyr Leu Thr Ala Trp Phe Glu Leu Leu Asn Leu	
95 100 105 110	
cca aag aag atc att ttt gtc ggc cat gat tgg ggt gct tgt ttg gca	387
Pro Lys Lys Ile Ile Phe Val Gly His Asp Trp Gly Ala Cys Leu Ala	
115 120 125	
ttt cat tat agc tat gag cat caa gat aag atc aaa gca ata gtt cac	435
Phe His Tyr Ser Tyr Glu His Gln Asp Lys Ile Lys Ala Ile Val His	
130 135 140	
gct gaa agt gta gta gat gtg att gaa tca tgg gat gaa tgg cct gat	483
Ala Glu Ser Val Val Asp Val Ile Glu Ser Trp Asp Glu Trp Pro Asp	
145 150 155	
att gaa gaa gat att gcg ttg atc aaa tct gaa gaa gga gaa aaa atg	531
Ile Glu Glu Asp Ile Ala Leu Ile Lys Ser Glu Glu Gly Glu Lys Met	
160 165 170	
gtt ttg gag aat aac ttc ttc gtg gaa acc atg ttg cca tca aaa atc	579
Val Leu Glu Asn Asn Phe Phe Val Glu Thr Met Leu Pro Ser Lys Ile	
175 180 185 190	
atg aga aag tta gaa cca gaa gaa ttt gca gca tat ctt gaa cca ttc	627
Met Arg Lys Leu Glu Pro Glu Glu Phe Ala Ala Tyr Leu Glu Pro Phe	
195 200 205	
aaa gag aaa ggt gaa gtt cgt cgt cca aca tta tca tgg cct cgt gaa	675
Lys Glu Lys Gly Glu Val Arg Arg Pro Thr Leu Ser Trp Pro Arg Glu	
210 215 220	
atc ccg tta gta aaa ggt ggt aaa cct gac gtt gta caa att gtt agg	723
Ile Pro Leu Val Lys Gly Gly Lys Pro Asp Val Val Gln Ile Val Arg	
225 230 235	
aat tat aat gct tat cta cgt gca agt gat gat tta cca aaa atg ttt	771
Asn Tyr Asn Ala Tyr Leu Arg Ala Ser Asp Asp Leu Pro Lys Met Phe	
240 245 250	
att gaa tcg gat cca gga ttc ttt tcc aat gct att gtt gaa ggc gcc	819
Ile Glu Ser Asp Pro Gly Phe Phe Ser Asn Ala Ile Val Glu Gly Ala	
255 260 265 270	
aag aag ttt cct aat act gaa ttt gtc aaa gta aaa ggt ctt cat ttt	867
Lys Lys Phe Pro Asn Thr Glu Phe Val Lys Val Lys Gly Leu His Phe	
275 280 285	
tcg caa gaa gat gca cct gat gaa atg gga aaa tat atc aaa tcg ttc	915

Ser Gln Glu Asp Ala Pro Asp Glu Met Gly Lys Tyr Ile Lys Ser Phe
 290 295 300

gtt gag cga gtt ctc aaa aat gaa caa taa ttactttggt tttttattta 965
 Val Glu Arg Val Leu Lys Asn Glu Gln
 305 310

catttttccc gggtttaata atataaatgt cattttcaac aattttattt taactgaata 1025
 tttcacaggg aacattcata tatgttgatt aatttagctc gaactttact ctgtcatatc 1085
 attttggaat attacctctt tcaatgaaac tttataaaca gtggttcaat taattaatat 1145
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Phe Ile Asn Tyr Tyr Asp Ser Glu Lys His Ala Glu Asn Ala Val Ile
 35 40 45

Phe Leu His Gly Asn Ala Ala Ser Ser Tyr Leu Trp Arg His Val Val
 50 55 60

Pro His Ile Glu Pro Val Ala Arg Cys Ile Ile Pro Asp Leu Ile Gly
 65 70 75 80

Met Gly Lys Ser Gly Lys Ser Gly Asn Gly Ser Tyr Arg Leu Leu Asp
 85 90 95

His Tyr Lys Tyr Leu Thr Ala Trp Phe Glu Leu Leu Asn Leu Pro Lys
 100 105 110

Lys Ile Ile Phe Val Gly His Asp Trp Gly Ala Cys Leu Ala Phe His
 115 120 125

Tyr Ser Tyr Glu His Gln Asp Lys Ile Lys Ala Ile Val His Ala Glu
 130 135 140

Ser Val Val Asp Val Ile Glu Ser Trp Asp Glu Trp Pro Asp Ile Glu
145 150 155 160

Glu Asp Ile Ala Leu Ile Lys Ser Glu Glu Gly Glu Lys Met Val Leu
165 170 175

Glu Asn Asn Phe Phe Val Glu Thr Met Leu Pro Ser Lys Ile Met Arg
180 185 190

Lys Leu Glu Pro Glu Glu Phe Ala Ala Tyr Leu Glu Pro Phe Lys Glu
195 200 205

Lys Gly Glu Val Arg Arg Pro Thr Leu Ser Trp Pro Arg Glu Ile Pro
210 215 220

Leu Val Lys Gly Gly Lys Pro Asp Val Val Gln Ile Val Arg Asn Tyr
225 230 235 240

Asn Ala Tyr Leu Arg Ala Ser Asp Asp Leu Pro Lys Met Phe Ile Glu
245 250 255

Ser Asp Pro Gly Phe Phe Ser Asn Ala Ile Val Glu Gly Ala Lys Lys
260 265 270

Phe Pro Asn Thr Glu Phe Val Lys Val Lys Gly Leu His Phe Ser Gln
275 280 285

Glu Asp Ala Pro Asp Glu Met Gly Lys Tyr Ile Lys Ser Phe Val Glu
290 295 300

Arg Val Leu Lys Asn Glu Gln
305 310

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<213> Homo sapiens

<220>
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<222> (1)..(543)

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gcc ttc gcc tcg tgc tgc att gct gct tac cgc ccc agt gag acc ctg 96

Ala	Phe	Ala	Ser	Cys	Cys	Ile	Ala	Ala	Tyr	Arg	Pro	Ser	Glu	Thr	Leu	
		20					25					30				
tgc	ggc	ggg	gag	ctg	gtg	gac	acc	ctc	cag	ttc	gtc	tgt	ggg	gac	cgc	144
Cys	Gly	Gly	Glu	Leu	Val	Asp	Thr	Leu	Gln	Phe	Val	Cys	Gly	Asp	Arg	
	35					40					45					
ggc	ttc	tac	ttc	agc	agg	ccc	gca	agc	cgt	gtg	agc	cgt	cgc	agc	cgt	192
Gly	Phe	Tyr	Phe	Ser	Arg	Pro	Ala	Ser	Arg	Val	Ser	Arg	Arg	Ser	Arg	
	50				55				60							
ggc	atc	gtt	gag	gag	tgc	tgt	ttc	cgc	agc	tgt	gac	ctg	gcc	ctc	ctg	240
Gly	Ile	Val	Glu	Glu	Cys	Cys	Phe	Arg	Ser	Cys	Asp	Leu	Ala	Leu	Leu	
	65				70				75					80		
gag	acg	tac	tgt	gct	acc	ccc	gcc	aag	tcc	gag	agg	gac	gtg	tcg	acc	288
Glu	Thr	Tyr	Cys	Ala	Thr	Pro	Ala	Lys	Ser	Glu	Arg	Asp	Val	Ser	Thr	
			85					90					95			
cct	ccg	acc	gtg	ctt	ccg	gac	aac	ttc	ccc	aga	tac	ccc	gtg	ggc	aag	336
Pro	Pro	Thr	Val	Leu	Pro	Asp	Asn	Phe	Pro	Arg	Tyr	Pro	Val	Gly	Lys	
		100					105					110				
ttc	ttc	caa	tat	gac	acc	tgg	aag	cag	tcc	acc	cag	cgc	ctg	cgc	agg	384
Phe	Phe	Gln	Tyr	Asp	Thr	Trp	Lys	Gln	Ser	Thr	Gln	Arg	Leu	Arg	Arg	
	115					120					125					
ggc	ctg	cct	gcc	ctc	ctg	cgt	gcc	cgc	cgg	ggg	cac	gtg	ctc	gcc	aag	432
Gly	Leu	Pro	Ala	Leu	Leu	Arg	Ala	Arg	Arg	Gly	His	Val	Leu	Ala	Lys	
	130				135				140							
gag	ctc	gag	gcg	ttc	agg	gag	gcc	aaa	cgt	cac	cgt	ccc	ctg	att	gct	480
Glu	Leu	Glu	Ala	Phe	Arg	Glu	Ala	Lys	Arg	His	Arg	Pro	Leu	Ile	Ala	
	145				150				155					160		
cta	ccc	acc	caa	gac	ccc	gcc	cac	ggg	ggc	gcc	ccc	cca	gag	atg	gcc	528
Leu	Pro	Thr	Gln	Asp	Pro	Ala	His	Gly	Gly	Ala	Pro	Pro	Glu	Met	Ala	
			165					170					175			
agc	aat	cgg	aag	tga												543
Ser	Asn	Arg	Lys													
			180													

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 <212> PRT
 <213> Homo sapiens

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20 25 30

Cys Gly Gly Glu Leu Val Asp Thr Leu Gln Phe Val Cys Gly Asp Arg
35 40 45

Gly Phe Tyr Phe Ser Arg Pro Ala Ser Arg Val Ser Arg Arg Ser Arg
50 55 60

Gly Ile Val Glu Glu Cys Cys Phe Arg Ser Cys Asp Leu Ala Leu Leu
65 70 75 80

Glu Thr Tyr Cys Ala Thr Pro Ala Lys Ser Glu Arg Asp Val Ser Thr
85 90 95

Pro Pro Thr Val Leu Pro Asp Asn Phe Pro Arg Tyr Pro Val Gly Lys
100 105 110

Phe Phe Gln Tyr Asp Thr Trp Lys Gln Ser Thr Gln Arg Leu Arg Arg
115 120 125

Gly Leu Pro Ala Leu Leu Arg Ala Arg Arg Gly His Val Leu Ala Lys
130 135 140

Glu Leu Glu Ala Phe Arg Glu Ala Lys Arg His Arg Pro Leu Ile Ala
145 150 155 160

Leu Pro Thr Gln Asp Pro Ala His Gly Gly Ala Pro Pro Glu Met Ala
165 170 175

Ser Asn Arg Lys
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<221> CDS

<222> (1)..(717)

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gaa ctg gat ggc gat gtg aat ggg cac aaa ttt tct gtc agc gga gag	96
Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu	
20 25 30	
ggg gaa ggt gat gcc aca tac gga aag ctc acc ctg aaa ttc atc tgc	144
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys	
35 40 45	
acc act gga aag ctc cct gtg cca tgg cca aca ctg gtc act acc ttc	192
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe	
50 55 60	
tct tat ggc gtg cag tgc ttt tcc aga tac cca gac cat atg aag cag	240
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln	
65 70 75 80	
cat gac ttt ttc aag agc gcc atg ccc gag ggc tat gtg cag gag aga	288
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg	
85 90 95	
acc atc ttt ttc aaa gat gac ggg aac tac aag acc cgc gct gaa gtc	336
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val	
100 105 110	
aag ttc gaa ggt gac acc ctg gtg aat aga atc gag ctg aag ggc att	384
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile	
115 120 125	
gac ttt aag gag gat gga aac att ctc ggc cac aag ctg gaa tac aac	432
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn	
130 135 140	
tat aac tcc cac aat gtg tac atc atg gcc gac aag caa aag aat ggc	480
Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly	
145 150 155 160	
atc aag gtc aac ttc aag atc aga cac aac att gag gat gga tcc gtg	528
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val	
165 170 175	
cag ctg gcc gac cat tat caa cag aac act cca atc ggc gac ggc cct	576
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro	
180 185 190	

gtg ctc ctc cca gac aac cat tac ctg tcc acc cag tct gcc ctg tct 624
 Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
 195 200 205

aaa gat ccc aac gaa aag aga gac cac atg gtc ctg ctg gag ttt gtg 672
 Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val
 210 215 220

acc gct gct ggg atc aca cat ggc atg gac gag ctg tac aag tga 717
 Thr Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys
 225 230 235

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<212> PRT

<213> Artificial

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 20 25 30

Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
 35 40 45

Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe
 50 55 60

Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
 65 70 75 80

His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg
 85 90 95

Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val
 100 105 110

Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile
 115 120 125

Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn
 130 135 140

Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly
 145 150 155 160

Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
165 170 175

Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
180 185 190

Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
195 200 205

Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val
210 215 220

Thr Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225 230 235

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<220>
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<222> (1)..(333)

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1 5 10 15

tgg gga cct gac cca gcc gca gcc ttt gtg aac caa cac ctg tgc ggc 96
Trp Gly Pro Asp Pro Ala Ala Ala Phe Val Asn Gln His Leu Cys Gly
20 25 30

tca cac ctg gtg gaa gct ctc tac cta gtg tgc ggg gaa cga ggc ttc 144
Ser His Leu Val Glu Ala Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe
35 40 45

ttc tac aca ccc aag acc cgc cgg gag gca gag gac ctg cag gtg ggg 192
Phe Tyr Thr Pro Lys Thr Arg Arg Glu Ala Glu Asp Leu Gln Val Gly
50 55 60

cag gtg gag ctg ggc ggg ggc cct ggt gca ggc agc ctg cag ccc ttg 240
Gln Val Glu Leu Gly Gly Gly Pro Gly Ala Gly Ser Leu Gln Pro Leu
65 70 75 80

gcc ctg gag ggg tcc ctg cag aag cgt ggc att gtg gaa caa tgc tgt 288
Ala Leu Glu Gly Ser Leu Gln Lys Arg Gly Ile Val Glu Gln Cys Cys
85 90 95

